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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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WOLF GREENFIELD & SACKS, P.C.
600 ATLANTIC AVENUE
BOSTON, MA 02210-2206

EXAMINER	
HUYNH, PHUONG N	

ART UNIT	PAPER NUMBER
1644	

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05/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,105	LAEREMANS ET AL.	
	Examiner	Art Unit	
	Phuong Huynh	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *One* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2005*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,16-34 and 36-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-13, 16-34 and 36-45* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

I. Claims 1-13, 16-34 and 36-45 are pending.

Election/Restrictions

II. Restriction to one of the following inventions is required under 35 U.S.C. 121 and 372:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1:

1. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 1**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

2. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 2**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

3. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 3**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

4. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain

antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 4**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

5. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 5**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

6. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 6**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

7. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 7**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.
8. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 8**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

9. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 9**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

10. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 10**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

11. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 11**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

12. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 12**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

13. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 13**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament

comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

14. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 14**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

15. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 15**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

16. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 16**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

17. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 17**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

18. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 18**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

19. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 19**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

20. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 20**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

21. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 21**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

22. Claims 1-9, 13, 19, 21, 23, 25, 27, 29, 31, 33, 36, and 42-45, drawn to an **anti-Epidermal Growth Factor Receptor (EGFR) polypeptide** comprising at least one single domain antibody directed against EGFR, an anti-EGFR polypeptide of **SEQ ID NO: 22**, a kit comprising said anti-EGFR polypeptide, a method for preparing a medicament

comprising combining said anti-EGFR and a carrier, and a therapeutic composition comprising said polypeptide.

23. Claims 10-12, and 16, drawn to **a method of identifying an agent** that modulates the binding of an anti-EGFR polypeptide to Epidermal Growth Factor Receptor.

24. Claim 17, and 39-41, drawn a **nucleic acid** encoding a anti-Epidermal Growth Factor Receptor (EGFR) polypeptide and a method producing said polypeptide.

25. Claims 18, 20, 22, 24, 26, 28, 30, 32, and 38, drawn **to a method for treating and/or preventing and/or alleviating a disorder related to cancer**, comprising administering to a subject in need of such treatment an effective amount of an anti-Epidermal Growth Factor Receptor (EGFR) polypeptide.

26. Claims 18, 20, 22, 24, 26, 28, 30, 32, and 38, drawn **to a method for treating and/or preventing and/or alleviating a disorder related to rheumatoid arthritis**, comprising administering to a subject in need of such treatment an effective amount of an anti-Epidermal Growth Factor Receptor (EGFR) polypeptide.

27. Claims 18, 20, 22, 24, 26, 28, 30, 32, and 38, drawn **to a method for treating and/or preventing and/or alleviating a disorder related to psoriasis**, comprising administering to a subject in need of such treatment an effective amount of an anti-Epidermal Growth Factor Receptor (EGFR) polypeptide.

28. Claims 18, 20, 22, 24, 26, 28, 30, 32, and 38, drawn **to a method for treating and/or preventing and/or alleviating a disorder related to hypersecretion of mucus in the lung**, comprising administering to a subject in need of such treatment an effective amount of an anti-Epidermal Growth Factor Receptor (EGFR) polypeptide.

29. Claim 34, drawn to **a method diagnosing a disorder** characterized by the dysfunctional of EGFR, contacting a sample containing EGFR with an anti-Epidermal Growth Factor

Receptor (EGFR) **polypeptide** comprising at least one single domain antibody directed against EGFR.

30. Claim 37, drawn to a **method for purification of EGFR** comprising contacting a sample containing EGFR with an anti-Epidermal Growth Factor Receptor (EGFR) **polypeptide** comprising at least one single domain antibody directed against EGFR.

The inventions listed as Groups 1-30 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The 20020058033 publication (PTO1449) teaches human single chain antibody that binds specifically to anti-epidermal growth factor receptor (EGFR), see paragraph 0045, in particular). The 20020058033 publication teaches a composition comprising the human single chain antibody against EGFR and the composition is useful for therapeutic and/or diagnostic of cancer (see paragraph 0016-0017, in particular).

The invention differs from the teachings of the reference only an anti-EPDR polypeptide comprising least one single domain antibody directed against EGFR.

WO 96/34096 publication (published October 1996; PTO 892) teaches an anti-epidermal growth factor receptor (EGFR) polypeptide such as human antibody to EGFR comprising at least one domain direct against EGFR (see entire document, page 14, line 25, claim 24 of the publication, in particular). The antibody is non-immunogenic and useful for treating cancer (see claim 47, in particular).

Muyldermans et al (J Molecular Recognition 12: 131-140, 1999; PTO 892) teach a method of making various single domain antibody direct against various antigens such as lysozyme, tetanus toxoid (see entire document, page 136, in particular). Muyldermans et al teach a minimal size of antigen-binding fragment would have several biotechnological and medical advantages: for example in cases where a lower immunogenicity, a more rapid clearance from blood and less non-specific binding or an improved penetration in dense tissues is required (see paragraph bridging page 135 and 136, in particular). Natural occurring antibody binding portion such as VHH (single domain) heavy chain antibody isolated from camels, or llamas is the smallest antigen binding fragment (see page 132, col. 2, Figure 1B-C, in particular).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make any single domain antibody from camelidate VHH as taught by Muyldermans et al that binds specifically to epidermal growth factor receptor (EGFR) as taught by the WO 96/34096 publication or the 20020058033 publication. From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

One having ordinary skill in the art would have been motivated to do this because Muyldermans et al teach a minimal size of antigen-binding fragment would have several biotechnological and medical advantages: for example in cases where a lower immunogenicity, a more rapid clearance from blood and less non-specific binding or an improved penetration in dense tissues is required (see paragraph bridging page 135 and 136, in particular). WO 96/34096 publication teaches human antibody is non-immunogenic and useful for treating cancer (see claim 47, in particular). The 20020058033 publication teaches composition comprising the human single chain antibody against EGFR is useful for therapeutic and/or diagnostic of cancer (see paragraph 0016-0017, in particular).

Since Applicant's inventions do not contribute a special technical feature when viewed over the prior art they do not have single general inventive concept and lack unity of invention.

III. Accordingly, Groups 1-30 are not so linked as to form a single general inventive concept and restriction is proper.

IV. Applicant is advised that the response to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed.

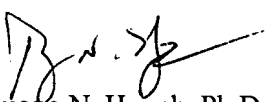
V. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be considered for rejoinder. All claims directed a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully

examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until all claims to the elected product claim are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

VI. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Huynh "NEON" whose telephone number is (571) 272-0846. The examiner can normally be reached Monday through Friday from 9:00 am to 5:30 p.m. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841. The IFW official Fax number is (571) 273-8300.

VII. Any information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Phuong N. Huynh, Ph.D.
Patent Examiner
Technology Center 1600
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